# TDP-136

TRANSCEIVER DATA PROGRAMMER

# TRANSCEIVER DATA PROGRAMMER TDP-136

●

# INSTALLATION & OPERATING INSTRUCTIONS

**Document No. 00RE277**
**Rev. D**

**SEP 2014**

Technisonic Industries Limited

# CONTACT INFORMATION

Technisonic Industries Limited
240 Traders Blvd.,
Mississauga,
Ontario L4Z 1W7

Tel: (905) 890-2113
Fax: (905) 890-5338

# APPLICATION INFORMATION

The TDP-136 is designed to allow you to transfer channel parameter data between any series136 transceiver (TDFM-136, TDFM-136A and TDFM-136B), and a PC. Changes in the TDFM-136 to support new features, have made it necessary to change the basic data structure used by the radio, and hence by the TDP-136. The table below shows which version of TDP-136 Software is required to operate with the TDFM-136 Radio Firmware.

| series136 Firmware and TDP-136 Software Compatibility | | |
|:---:|:---:|:---:|
| **TDFM-136(A)  Firmware** | **TDFM-136B Firmware** | **TDP-136 PC Software** |
| Release 1.x.x | -- | Use version 1.13 |
| Release 2.x.x | -- | Use 2.5.x or higher (latest version) |
| Release 3.x.x | Release 1.x.x | |

| Document Revision Table for 00RE277 | | | | |
|---|---|---|---|---|
| **Rev.** | **Page** | **Description** | **Date** | **By** |
| A | Section 2 (all pages) | Change document to reflect operating instructions for R1V11 software.<br>. fix GD1/GD2 upload<br>. support print to file | NOV 2000 | R.K. |
| B | | Change document to reflect operating instructions for Release 2.0.0 software. | MAR 2004 | A.M. |
| C | All pages.<br>Pg. 3, 15<br>Pg. 3, 4, 12<br><br>Pg. 14 | Changed pagination from sect-page to page only.<br>Front Panel Programming Port & USB support.<br>Changed document to reflect Operating Mode support changes.<br>COM port select. | FEB 2013 | A.M. |
| D | Pg. 11 | Added Set Noise Squelch. | SEP 2014 | A.U. |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

# Table of Contents

# Table of Figures

\* Windows is a registered trademarks of Microsoft Corporation.

## SECTION 1

## GENERAL DESCRIPTION

## 1.1   Introduction

This publication provides operating and installation information on the Technisonic Industries Ltd. (TiL) Transceiver Data Programmer (TDP-136) for series136 transceivers (TDFM-136, TDFM-136A and TDFM-136B). The TDP-136 software supports:

- •   Creating and editing RF parameter data for programming a transceiver memory.
- •   Transferring that data to or from a transceiver.
- •   Saving and printing that data.
- •   Importing data files from the .138 format to support changing from older analog only transceivers to mixed analog/digital transceiver.

**Note:**   The TDP-136 is specific to the series136 transceivers; for software that supports other TiL transceiver products please refer to MultiTDP. Further information is available at [www.til.ca](www.til.ca).

## 1.2   Description

The software allows the user to manage transferring channel/memory parameter data to and from TiL TDFM-136 Series transceivers.  Parameter data files created with TDP-136, or uploaded from a series136 transceier may be saved and opened as <filename.136> files.  Additionally, data files from TFM-138 series radios can be imported and converted for use with the series136 transceivers.

## SECTION 2

## INSTALLATION INSTRUCTIONS

This section provides the user with instructions to install TDP-136 on to a PC running Microsoft Windows, and how to physically connect the PC to the transceiver for data transfer.


## 2.1   Software Installation

The TiL TDP-136 software is a 32 bit Windows application that will work under Windows Operating systems, including:  XP, Win7 and Win8.  While TDP-136 is known to work on previous versions of windows, specifics of those installations is not covered here.

The Installation procedures outlined in this document, assume some basic working knowledge of at least one of the supported operating systems.

**Note:**  At any point during installation, if any Dialog Boxes pop up exclaiming that newer system files are about to be overwritten by older files, click the selection to keep the newer files.

### 2.2.1 Full Install

To install TDP-136 on a system that does not currently have TDP installed:

1. Locate SETUP.EXE on the CD-ROM, and start it.

2. After setup finishes unpacking the software, a dialog box will pop up with the option to install the software, see figure 2-1.  Additionally you can specify a different install directory if you wish.
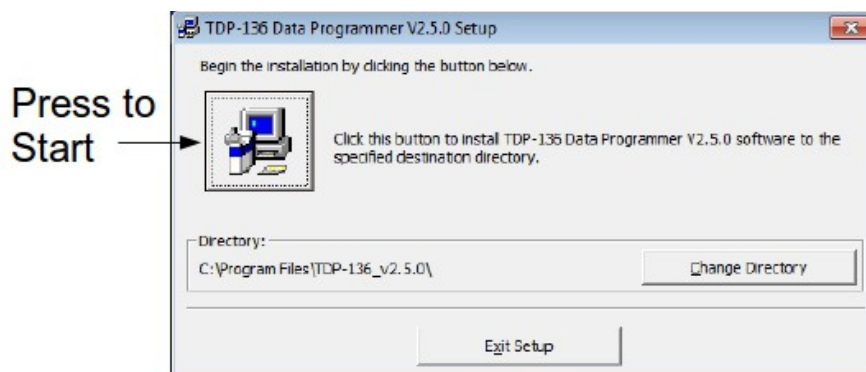


Figure 2-1.     TiL TDP Installation Dialog


3. The TDP installation will ask what START menu Program Group you want the TDP software shortcut installed. Click FINISH if the default Program Group name is adequate.

TDP-136 is now installed and ready to use.

### 2.2.2 Update an Existing Installation

To upgrade TDP-136 on a system that has TDP currently installed

1. Locate  the upgrade directory on the CD-ROM, and open it.
2. Copy the TDP-136 executable file to the same directory where the current version is installed.
3. Create a shortcut to the new file.

TDP-136 is now upgraded and ready to use.

## 2.2    Hardware Connection

In order to transfer data between the PC and the target transceiver you need a cable to connect the two.  All transceivers in the series136 family support data loading via the main connector (DB-15 Male) on the back of the unit.  In addition all TDFM-136B units and any TDFM-136A with serial number FDA1200 or higher, can communicate through the front panel mounted mini DIN 8 connector.  TiL makes the following cables available:

1. *PC Serial Port to TDFM-136 Rear Connector cable:  TiL Part No. 003469-1*
   This includes power supply pigtails to allow a stand alone configuration with a user supplied power source (28VDC,3A).

   See section 4 Appendix for cable connections for building your own cable.

2. *PC USB Port to TDFM-136A Front Panel Connector cable:  TiL Part No. 127507*
   This cable connects to a USB port. The connection to the radio is for the front panel only, the transceiver must be powered separately.

3. *PC USB / Serial Port to TDFM-136B Front Panel Connector cable:  TiL Part No. 127504*
   This cable can connect to either the PC 9 pin serial port or to a USB port. The connection to the radio is for the front panel only, the transceiver must be powered separately.

## 2.3    Operating Mode Support

As of 01 JAN 2013 use of wideband (25 kHz) capable radios has been restricted in the US, and as a result the TDP-136 now defaults at start-up to a configuration wherein wideband mode is not permitted.  However, in many jurisdictions outside of the US, this channel bandwidth is still used.  To enable TDP support of wideband at start-up you must change the default parameters passed to the program at run-time. To do this edit the properties of the shortcut used to launch TDP-136.

**NOTE:**    You can only change the run-time parameters on a shortcut to the executable, not the EXE file itself.
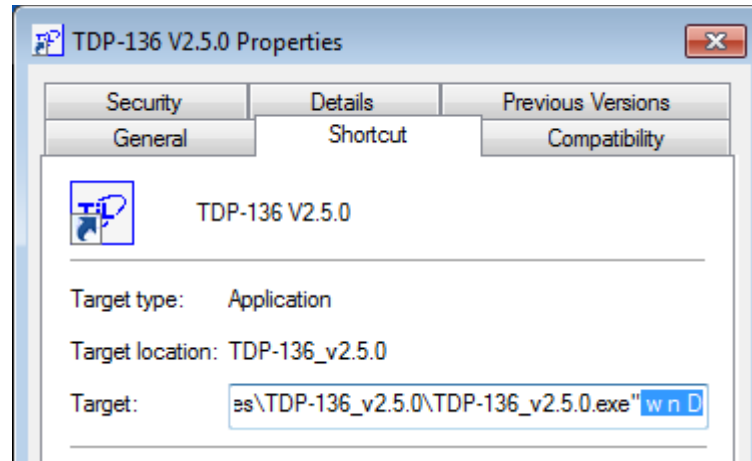
Figure 2-2. Changing Start-up Operating Mode Support

Referring to figure 2-2, in the "Target:" field, move to the end of the line and define the modes you wish the TDP to support: 'w' for wideband analog, 'n' for narrowband analog, and 'D' for P25 phase 1.  Note that the entries are not case sensitive. Each entry is separated by a space.

If modified as shown in figure 2-2, then when you launch TDP it will support all operating modes.

**NOTE:**   This will allow you to select the available modes in the TDP only, it will not force a radio with wideband disabled to re-enable wideband support.

The start-up Operating Modes are only in effect until you communicate with a radio. Once you make a data transfer to or from a radio, the TDP will set the allowable Operating Modes to match what is enabled in the attached radio.

# SECTION 3

# OPERATING INSTRUCTIONS

## 3.1  General

This section contains instructions for the correct operation of the TDP-136 software, and explanations of the various elements of the program's Graphical User Interface (GUI).

**NOTE:**  The following images are examples only, and may not reflect your particular data settings.

## 3.2  Getting Started

To start the TDP-136 in Windows, click the Start menu > Programs > Technisonic >TDP-136. The program should begin, and the following program window should open up. The current version number is in square brackets in the Title Bar.  The TDP-136 window is shown in figure 3-1 below.
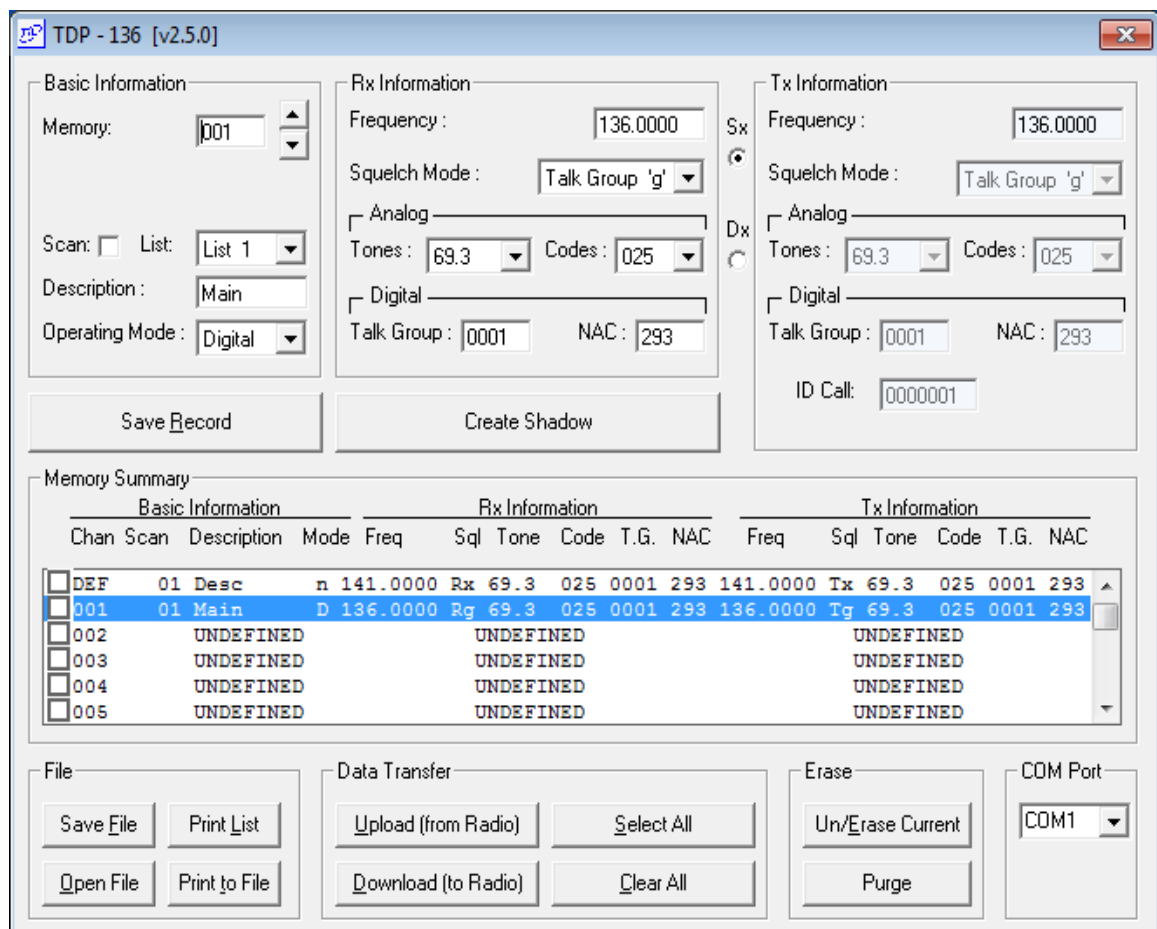


Figure 3-1.      TDP-136 Program Window

## 3.3   Using TDP-136

The window is broken up into 8 logical sections or 'frames' as follows: Basic Information, Rx Information, Tx Information, Memory Channel Summary, File Functions, Data Transfer Functions, Erase/Purge Functions, and COM Port Selector.  All data entry, information display and operation of the TDP is handled by these controls.

### 3.3.1 Basic Information Frame

The Basic Information frame is where you enter or edit the basic information for a channel memory. The field information displayed includes: the current active memory for editing, the **Scan List(s)** that the current **Memory** is to be included in, the text **Description** assigned to that memory and the memory **Operating Mode**.
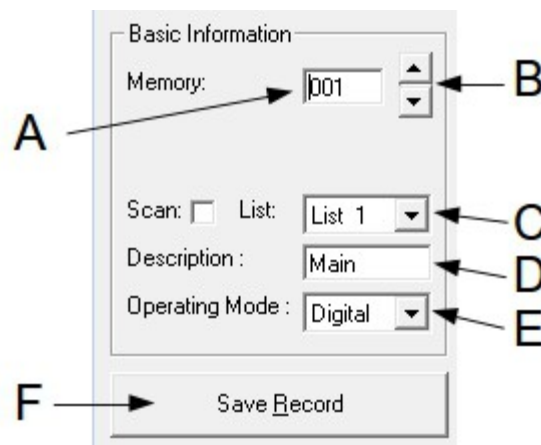


Figure 3-2. Basic Information Frame

**A.** The **Memory** box displays the currently active memory. Valid entries are DEF, 1 through 230 for Main channel, GD1, and GD2 for Guard channel. If you like, you may directly enter the memory number you would like to edit into this box. Invalid characters will be ignored.

**B.** The UP/DOWN buttons allow you to select the next or previous memory for editing. If you should scroll down past the lower memory limit (001), the memory will jump to GD2 and continue scrolling down from there. Inversely, if you should scroll up past the upper memory limit (GD2), the memory will jump to 001 and continue scrolling UP from there.

**C.** The **Scan List** pull-down list box allows you to assign the current memory to a scan list. Each new memory **must** be assigned to a scan list, and can be a member of **only one** scan list. There are 15 scan lists, and each scan list can have up to 16 members.

**D.** The **Description** text box, allows for a name or label to be assigned to the current active memory. The label can be any arbitrary word up to 8 characters in length. Valid characters are 0 through 9, (lower-case) a through z, (upper-case) A through Z, (space), !, ", #, $, %, and &. Invalid characters will be ignored.

**E.** The **Operating Mode** pull-down list box, sets and/or displays the current mode of operation for the memory being programmed. The pull-down box allows for selection but not direct entry. As of release 2.5.0, TDP validates the selected mode against the available modes in the radio. If an unavailable mode is chosen, it will be changed to an available mode.
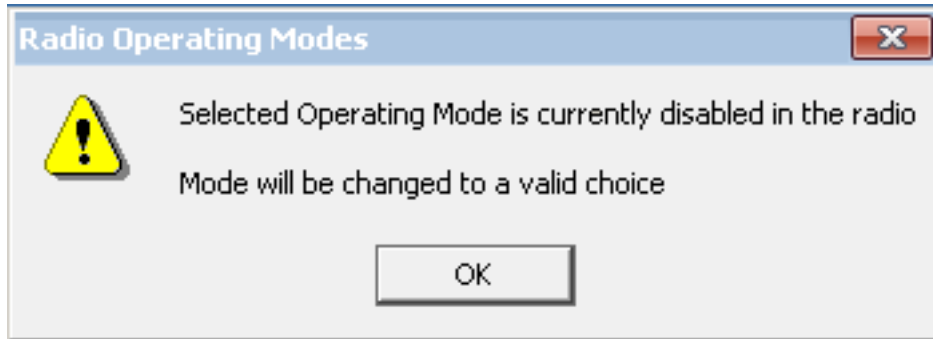
Figure 3-3. Disabled Operating Mode Alert

The TDP will not allow you to create a new memory with an Operating Mode that it believes the connected transceiver does not support.

**F.** The **Save Record** button, will save any changes made in the Basic Information, Rx Information, Tx Information frames for that memory. You will see the active memory data in the Memory Summary reflect the changes made. By clicking on the Save Record, the memory will advance by one record.

**G.** When the current memory is DEF, You may edit the DEFault values of all information entered into the Basic Information, Rx information, and Tx Information frames. These entries will become the defaulted values pre-entered into all the fields of each frame for any memory that has never been edited.

## 3.3.2 Rx Information Frame

The Rx Information frame is where you enter or edit the receive parameters for the selected memory. Each field is explained below.
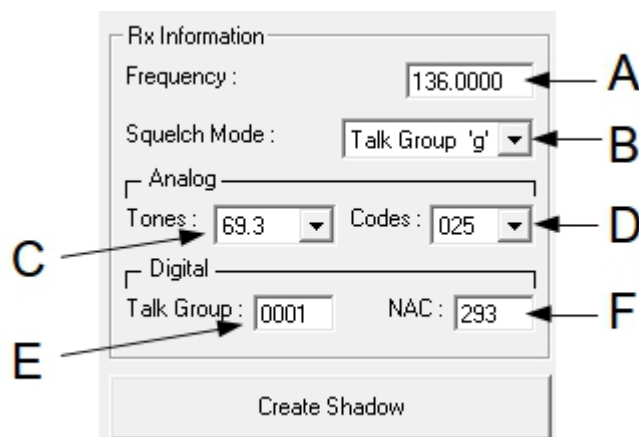


Figure 3-4. Rx (Receive) Information Frame

**A.** This **Frequency** box determines the receive frequency. The valid range is 136.0000 MHz to 174.0000 MHz in 2.5 kHz increments, or a valid 6.25 kHz frequency. The program will ignore invalid characters.

**B.** The **Squelch Mode** pull-down list box selects either Noise, CTCSS, or DCS (also known as DPL) modes for Narrow or Wide (analog) operating modes. For Digital operating mode, the valid selections are Digital Clear, or Talk Group. The pull-down box

allows for selection but not direct entry, and will not allow a squelch mode that is incompatible with the operating mode selection.

**C.** The **Tones** pull-down list allows for the selection of a standard tone frequency for the **CTCSS tone** squelch mode. The pull-down box allows for selection but not direct entry.

**D.** The **Codes** pull-down list allows for the selection of a standard DCS code for the **DCS code** squelch mode. The pull-down box allows for selection but not direct entry.

**E.** The **Talk Group** box is used to assign a numeric identifier or serial number to the user for the P25 (digital) operating mode. This is a 4 character HEXADECIMAL number. Valid characters are 0 to 9 and A to F.  All other characters will be ignored.

**F.** The **NAC** (Network Access Code) box is used to assign a numeric identifier or serial number to the user for the P25 (digital) operating mode. This is a 3 character HEXADECIMAL (base 16) number. Valid characters are 0 to 9 and A to F. All other characters will be ignored.

### 3.3.3 Tx Information Frame

The Tx Information frame is where you enter or edit the transmit parameters for the selected channel memory. Each field is explained below.
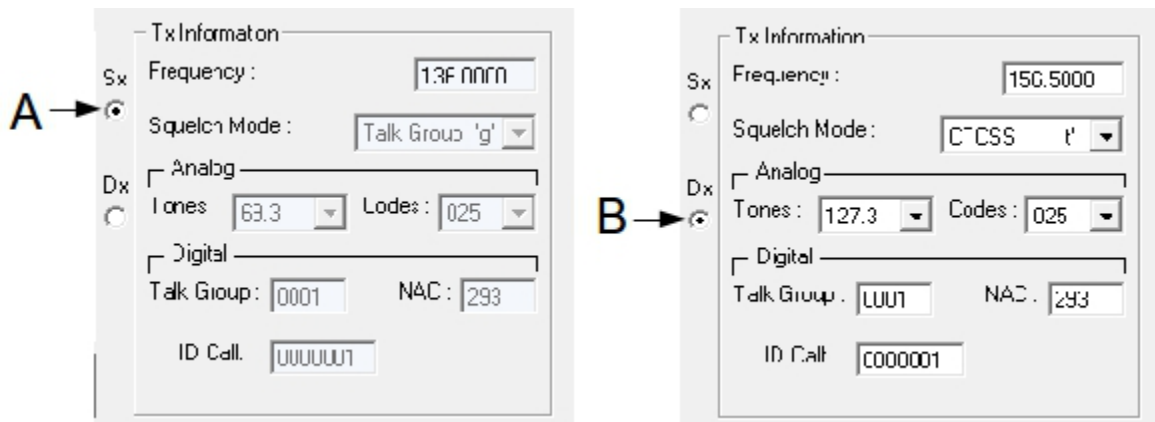


Figure 3-5. Tx (Transmit) Information Editing Window

The **Sx** and **Dx** radio buttons, select either Simplex or Duplex operation. In Simplex (Sx) mode, receive (Rx) and transmit (Tx) parameters are the same, in Duplex (Dx) mode, the Rx and Tx parameters may differ. The operation is as follows:

**A.** In Simplex (Sx) mode, the Tx Information setting fields are grayed out, and none of the field values may be edited. All the values in the fields will be the same as those entered in the Rx Information frame. When you enter the information into each field in the Rx frame, the corresponding Tx field will display the same setting.

**B.** In Duplex (Dx) mode, the Tx Information setting fields are available for edit. Changing the transmit fields has no effect on the data in the receive fields. The information fields are the same as for Receive, with the addition of the digital squelch mode IDCall. The IDCall is the seven digit Unit ID of a specific P25 (digital) station you wish to contact.

### 3.3.4 Creating Shadow Memories

The TDFM-136 with firmware Release 2.0.0 and later, and all TDFM-136A & TDFM-136B models support 'Shadowing'.  This feature allows you  to link up to seven (7) 'shadows' to one (1) primary memory. In this link, the frequency must remain the same, but Operating Mode and Squelch Modes may vary (see the appropriate TDFM-136, '136A, or '136B Operating Instructions for a complete description).

You may create a shadow by selecting the "Shadow Memory' button, which is located beside the "Save Record" button (see figure 3-1 above).  Once the user selects the "Create Shadow" button, the following dialog box is displayed:
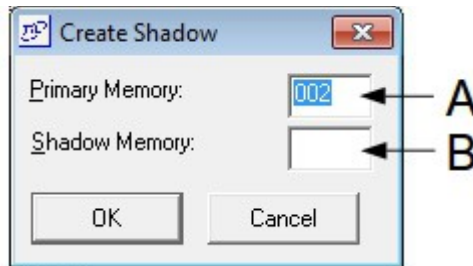


Figure 3-6.  Create Shadow Dialog Box

The dialog allows you to select a 'Primary' memory, by number, and assign a number to the shadow channel. Note that Guard memories cannot have shadows.

**A.**  When the create Shadow dialog comes up, the memory that you were on becomes the default selection for the Primary memory, but you can change that to any existing *Main memory* (provided that it is not already a shadow).

**B.**  After you select a Primary memory, then choose a number for the Shadow Memory that you wish to create (this must be a currently un-used memory!).

Once you have made your selections, press OK, this immediately puts the Shadow Memory Data into the Edit Frames (Basic, Rx, and Tx Information frames).  You can now edit all the data, except for the  frequency.

### 3.3.5 Setting Noise Squelch

The Noise Squelch Dialog sets the squelch value used by all memories set for analog noise squelch (squelch mode 'x'). This value is transferred to the radio when a download takes place. The value is not saved in the data file.
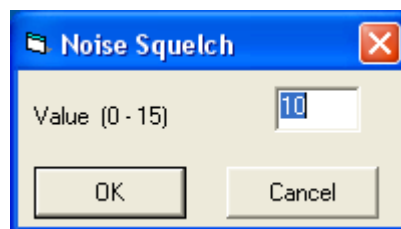


Figure 3-7.  Noise Squelch Dialog Box

**Note:** To set the value for all memories on a 136B, press "Select All' before starting the data transfer to the radio.

### 3.3.6 Memory Summary Frame

The Memory Summary displays the current settings for all the available memories (all Main memories plus, GD1, and GD2). All of the information for each memory line represents the settings as defined in the Basic Information, Rx Information, and Tx Information fields.



Figure 3-8.  Memory Summary Frame

The up-down scroll bar on the right will allow you to quickly move to the desired memory in the summary window. The selected memory will automatically center itself in the window (where possible). And will become the 'active' memory displayed in the Edit frames/fields above. The TDP software will keep track of and display whether the memory entry was programmed in Simplex (Sx) or Duplex (Dx) modes. The editable memory default settings (defined as '**Def**') are shown at the top of the summary window, and remain there for quick reference, independent of the memory list position.

You may also use the summary window to select the active memory for editing. By clicking anywhere on the line of any of the memory listed in the window, you will make that memory active for editing in the Basic Information, Rx Information, and Tx Information frames.

If the **Save Record** button is clicked at any point after editing any active memory, the changed information is reflected for that memory in the summary window.
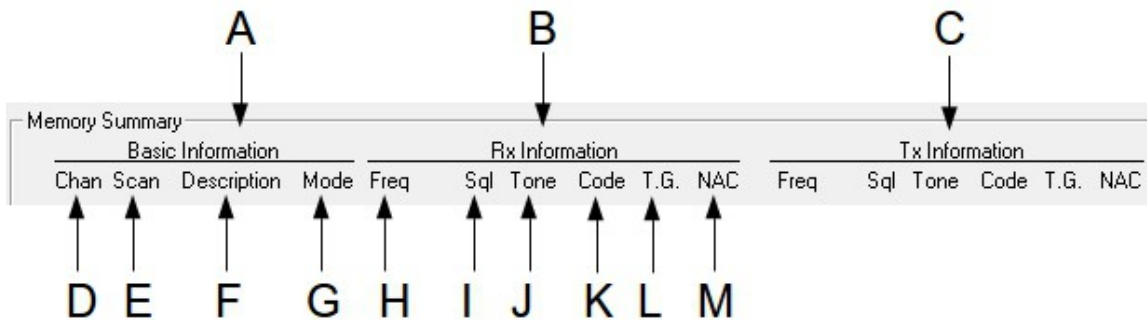


Figure 3-9.  Memory Summary Window Header

The Memory Summary is a column and row representation of the parameter data for system memories that have been programmed, the window header is organized as follows:

**A.** A summary of the Basic Information configuration for the memories. See 3.3.1

**B.** A summary of the receive settings for the memories. See 3.3.2

**C.** A summary of the transmit settings for the memories.. See 3.3.3

**D. Chan** represents the memory number (001 to 232).

**E.** **Scan** shows which scan list(s) each memory is currently assigned to.

**F.** The **Description** is the alphanumeric label or name assigned by the user to the memory.

**G.** **Mode** indicates the operating mode of the memory. **n** indicates analog with narrow bandwidth (12.5 kHz), the **w** indicates analog with wide bandwidth (25 kHz) and **D** indicates Digital operating mode with 12.5kHz bandwidth.

**H.** This is the receive **Freq**uency assigned to the memory.

**I.** Indicates the **Squel**ch mode assigned to the receive function of the memory. In Noise and Digital Clear squelch mode, the mode will be indicated as **Rx**. In CTCSS mode, the mode will be indicated as **Rt**. The DCS squelch mode is identified as **Rc**. In digital mode, the Talk Group mode is identified as **Rg**.

**J.** **Tone** is the user selected CTCSS tone.

**K.** **Code** is the user selected DCS code.

**L.** Represents the unique identifier or serial number assigned to the **T**alk **G**roup function for the Digital Mode.

**M.** Represents the unique identifier or serial number assigned to the **N**etwork **A**ccess **C**ode function for the Digital Mode.

**Note:** H, I, J, K, L, and M represent the same data types for the Transmit Information.
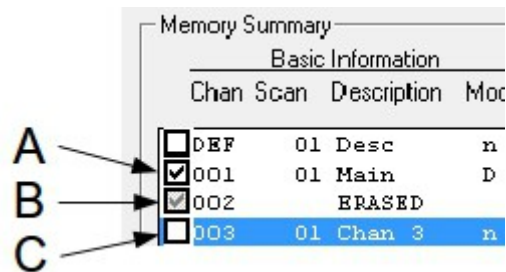


Figure 3-10.  Save and Erase Check Box

To the left of the memory number, you will notice a column of check-boxes. These check-boxes indicate whether a memory's content data is to be saved, erased or ignored during the download process.

**A.** The check-box indicates a memory whose data is to be updated in the connected radio during download.

**B.** The grayed check-box indicates a memory whose contents are to be erased from the connected radio during download.

**C.** An empty check-box will do nothing during download. During the download process, the memory will be skipped over. (See 3.3.6 - C and D).

## 3.3.7 File Functions Frame

The File Functions controls allow the user to manipulate the Transceiver Data Files for series136 transceivers (*filename*.136).
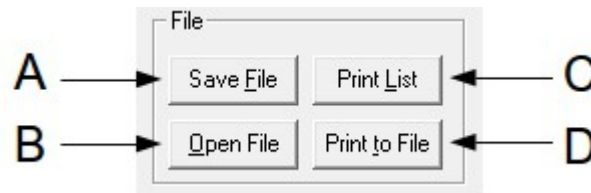


Figure 3-11. File Manipulation Controls

A.   **Save File** will allow you to save the Current data set into a file with a name of your choosing. The filename may be any length up to 64 characters. A file extension of .136 will be automatically appended to the filename. **(eg:** Dataset1**.136)**

B.   **Open File** will bring up the Open dialog box to allow you to select an existing .136 file to load.

C.   The **Print List** function will print all the contents of all the channels (All Main and both Guard) channels, as presented in the Memory Summary window. The description header will be printed at the top of each page.

D.   The **Print to File** option will create a text file of the entire channel list, as presented in the Memory Summary window. The text file may then be inserted into your documentation.

## 3.3.8 Data Transfer Functions

The Data Transfer Functions allow you to send data to or receive data from a series136 transceiver. Note that the transceiver and the user's PC must be correctly connected for file transfer to work. Each button is explained below.
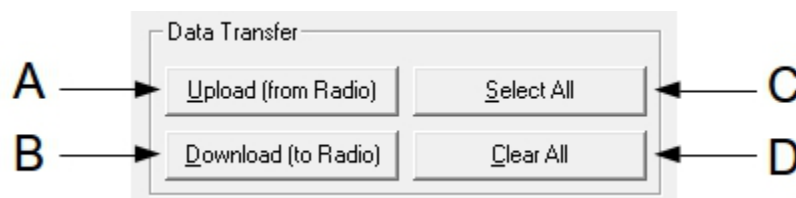


Figure 3-12.  Data Transfer Controls

In TDP-136, the button nomenclature has been worded to coincide with the radio's function. Any memory that has parameters assigned to it is termed 'defined', any memory that does not have parameters assigned to it is 'undefined', and is marked as such. When a data transfer is started,  the Memory Summary Window, changes into a transfer status window until the transfer is complete.

A.   The **Upload (from Radio)** button instructs the TDP-136 program to read in the memory data *from* the radio connected to the PC.

B.   The **Download (to Radio)** button instructs the TDP-136 program to send the data, for any defined memories, *to* the radio connected to the PC.

C.  **Select All** marks all *defined* memories for download to the radio. In the Memory Summary window, all defined memories will be marked with a check to the left of the memory number. All memory data will be sent to the radio connected to the PC during the download process.

D.  **Clear All** un-selects all memories in the Memory Summary window.

**Note:** if you download to a radio without uploading first, TDP-136 will PURGE the contents of the transceiver first!  TDP will also PURGE the contents of the transceiver first if you change scan list or shadow information.

As of TDP-136 v2.5.0, when downloading to the radio TDP will compare the Operating Modes uses in the memory data against the operating modes enabled in the attached transceiver. If the transceiver does not have a required operating mode enabled (typically wideband), you will see the following message:
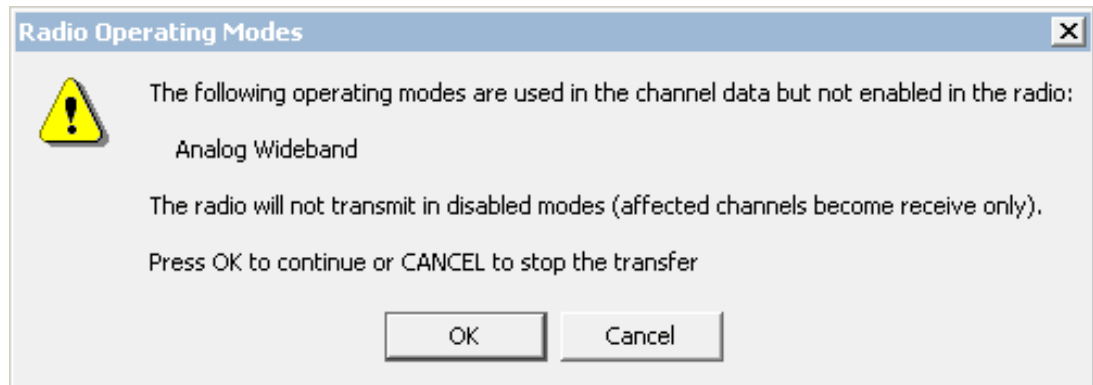


Figure 3-13.  Enabled Operating Mode mismatch between TDP and Transceiver.

If you download memory data that requires an operating mode that is disabled, the radio will treat that memory as receive only.

### 3.3.9 Erase/Purge Functions

The erase and purge functions allow you to erase selected memories (Erase) or to remove all data from the radio and reset it to 'FACTORY SETTINGS' (Purge). The functions may be selected or de-selected in the TDP software as desired, the actual data in the Transceiver is not affected until the command is transferred to the unit using the 'Download' command.

**NOTE:** Once the command has been sent to the Transceiver, the previous information **CANNOT** be restored using the UnErase or UnPurge functions.
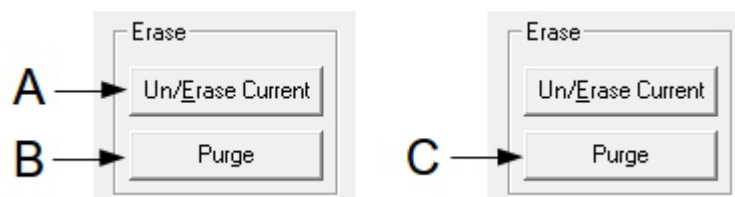


Figure 3-14.  Erase and Purge user Controls

**A.** By clicking on the **Un/Erase Current**, you will mark the currently active memory for erasing. The contents of the memory in the Memory Summary window will be replaced with the word ERASED. The memory will also be marked with the grayed out check-box. During the download process, the contents of memories marked for erase will be erased on the connected radio.

This is a toggle function. If you click Un/Erase Current again, the previous data contents for the currently active memory will be restored in the TDP Software only (see the note above)
Because of the nature of the series136 radios, memories 001, GD1 and GD2 CAN NOT be empty or erased. If you click the Un/Erase Current button while either of the memories is active, the program will display an Alert message to inform you of this.

**B.** The **Purge** function, effectively resets any series136 transceiver to 'AS SHIPPED from the FACTORY'. This function erases the entire contents of the transceiver, and resets memories 001, GD1 and GD2 to the factory defaults. Use this function to quickly erase and reset the transceiver.

**C.** **Purge** is a toggle function. When the Purge button is pressed, it becomes an **UnPurge** function. By clicking this UnPurge function, all the channel data for each of the Channels in the Channel Summary window will be restored IN THE TDP SOFTWARE ONLY – you CANNOT UnPurge the Transceiver Data once the command has been sent.



Figure 3-15.  Summary Window when Purge is Selected

When the user selects Purge, all the memories in the Memory Summary window will be displayed in reverse image (white on black). This mode applies to all memories independent of whether they are selected (indicated by check mark) or not. The Purge command will be executed upon Download ONLY.

### 3.3.10 COM Port Selector Frame

This selects the COM (RS-232 Serial communications) port on your computer, to which the TDFM-136 is connected.  You can select from the drop-down list or direct enter a value.



Figure 3-16. COM Port Selector

**NOTE:**     The drop-down lists all available COM ports found on the PC when TDP was started. If a COM port was in use by another program at that time, it will not be detected by TDP and consequently will not be in the list (but it can be directly entered instead).

Some computers still support hardware serial ports, if this is the case, these will typically be 9 pin male "D" connectors and the ports will be probably be mapped to COM1 and COM 2. More likely there will be no physical serial port and you will need to use a hardware USB to Serial converter.  Check your PC documentation to see which COM ports are mapped to the physical USB ports on your machine.  Alternately if you are using a desktop computer you can install a serial card to get the serial port function.

Any time you select a COM port, the selection is saved automatically.  The next time the TDP-136 software is run, the COM port you have chosen, will be selected.

**NOTE:**     The TDP-136 software assumes you have an available, properly configured COM port, or equivalent USB port with a USB to Serial converter attached.

### 3.3.11 RS-232 Serial Technical Data

The TDP-136 software communicates with the TDFM-136 transceiver at 9600 Baud, 8 Data bits, No parity and 1 Stop bit. The TDP software is preset to this configuration and the settings are not user definable.

# SECTION 4

# APPENDIX

It is possible to build your own cable for connecting a PC serial port to the rear port of a series136 transceiver.  The table below shows the connections used in the TiL cable part number: 003469-1.

Note that the transceiver connects to the PC *or* to the PIB, *never to both*, so you only need to build a cable to wire the transceiver to one of either the PC or the PIB.

The PIB cable is only useful if you are currently using a PIB to communicate with other TiL transceivers, all this does is allow you to connect to the PIB leaving the PIB connected to the PC.  If you do not use a PIB, then omit this connector.

| TRANSCEIVER to PC or PIB CABLE CONNECTIONS | | | |
|---|---|---|---|
| SIGNAL | TRANSCEIVER DB15 F | PC DB9 F | PIB DB15 M |
| Power (+28VDC) | 7 & 14 | n/c | 7 & 14 |
| Ground | 15 & 8 | n/c | 15 & 8 |
| Signal Ground | 10 | 5 | n/c |
| RS232 Data from PC to Radio | 2 | 2 | 2 |
| RS232 Data from Radio to PC | 11 | 3 | 11 |

All pins are no connect unless specified in the table.

Ensure the wires used for the power and ground are AWG24 minimum.